

ABSTRACT OF THE DISCLOSURE

A motor has a plurality of excitation coils, a commutator having a plurality of segments, a plurality of supply brushes and a short-circuit line. Each coil is connected to corresponding ones of the segments. The supply brushes include a plurality of supply brushes each having one of an anode and a cathode. At least one supply brush has the other one of an anode and a cathode. The supply brushes each simultaneously contact different one of the segments. The short-circuit line short-circuits segments that simultaneously contact the supply brushes of the same pole. The supply brushes of the same pole separate from the short-circuited segments at different times.